

# Missouri Quail and Pheasant Population Status Report



**2011-2012**



**Missouri Department of Conservation**

Prepared by: Beth Emmerich, Resource Science Division, Max Alleger, Wildlife Division  
and Bill White, Private Lands Division

## Weather Summary

The winter of 2011-2012 brought unseasonably warm temperatures and lower than normal precipitation to the Midwest. All regions of Missouri had very low amounts of snowfall this winter. Snowfall totals ranged from 0.5 inch in the Ozark region to 10.3 inches in the Northeast region. Mild winter weather and below normal snowfall resulted in higher overwinter survival for bobwhite. The mild winter gave way to an early spring, with March 2012 becoming the warmest on record for Missouri with an average temperature of 57.7°F.

Summer was characterized by hot, dry weather, resulting in drought conditions across the entire state, with the Southeast region being the driest. The entire Midwest experienced the warmest and driest March-August period and the fourth most severe drought measured by the Palmer Z index, behind 1936, 1934 and 1988. In fact, the driest region (the Mississippi Lowlands) had the highest increase in quail numbers in 2012. This is likely due to areas idled from production due to flooding in 2011. The four consecutive years (2008-2011) of wet, cool springs were harder on quail nesting than one extremely dry summer. Table 1 lists winter snowfall and spring/summer rainfall averages and departures from normal by MDC administrative region. A map of MDC administrative regions is shown in Figure 1.

**Table 1.** Missouri 2011-2012 winter snowfall and spring/summer rainfall summary.

	MDC Administrative Regions <sup>1</sup>							
	NE	NW	C	KC	STL	OZ	SE	SW
Winter <sup>2</sup> 2011-2012 snowfall (inches)	10.3	5.7	6.6	2.7	4.0	0.5	3.8	2.8
Departure <sup>3</sup> from normal (inches)	-15.5	-18.3	-18.8	-11.9	-9.8	-1.5	-10.6	-16.7
Spring/Summer <sup>4</sup> rainfall (inches)	10.4	13.7	15.7	8.6	11.5	10.9	9.1	13.4
Departure from normal (inches)	-10.9	-8.1	-4.9	-12.2	-9.3	-9.1	-11.6	-7.5

<sup>1</sup> Map of MDC Administrative regions shown in Figure 1.

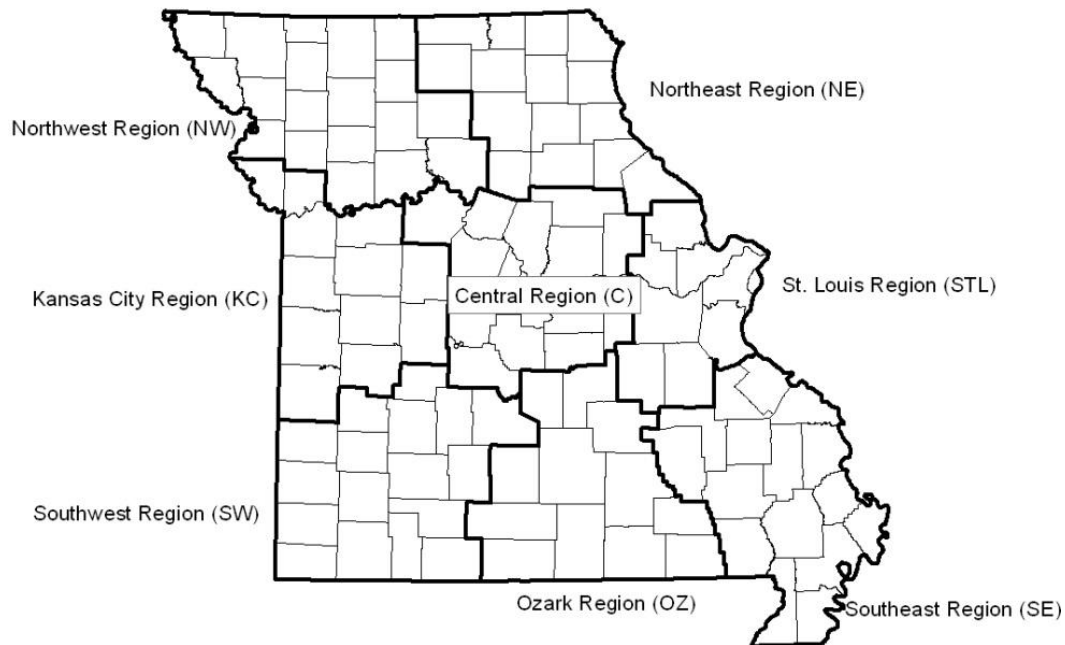
<sup>2</sup> Winter snowfall is the average total for the region from November 1, 2011 through March 31, 2012.

<sup>3</sup> Departure calculated from 1971-2000 norms.

<sup>4</sup> Spring/summer rainfall is the average total for the region from April 1 through August 31, 2012.



**Figure 1.** MDC Administrative Regions



### Quail Abundance

Conservation Agents conducted roadside counts of bobwhite quail from August 1-15 in 109 of Missouri's 114 counties. Clay, Jackson, St. Louis and St. Charles counties are not included because they are high-density urban areas near Kansas City and St. Louis. Surveyors count the number of quail observed while driving  $\leq 20$  miles per hour along permanent 30-mile gravel road routes. Participants are instructed to conduct counts beginning at sunrise on clear, dewy mornings with light winds to increase chances that bobwhites will be near roadsides. This year drought conditions led to less than ideal conditions for conducting the surveys. These observations are used to provide an index of quail abundance across the landscape. Because only a small portion of each county is sampled, the index best represents quail population trends at very large scales, such as statewide and zoogeographic region. The roadside survey routes are located almost entirely through private land, so the quail index is a reflection of conditions on Missouri's private lands.

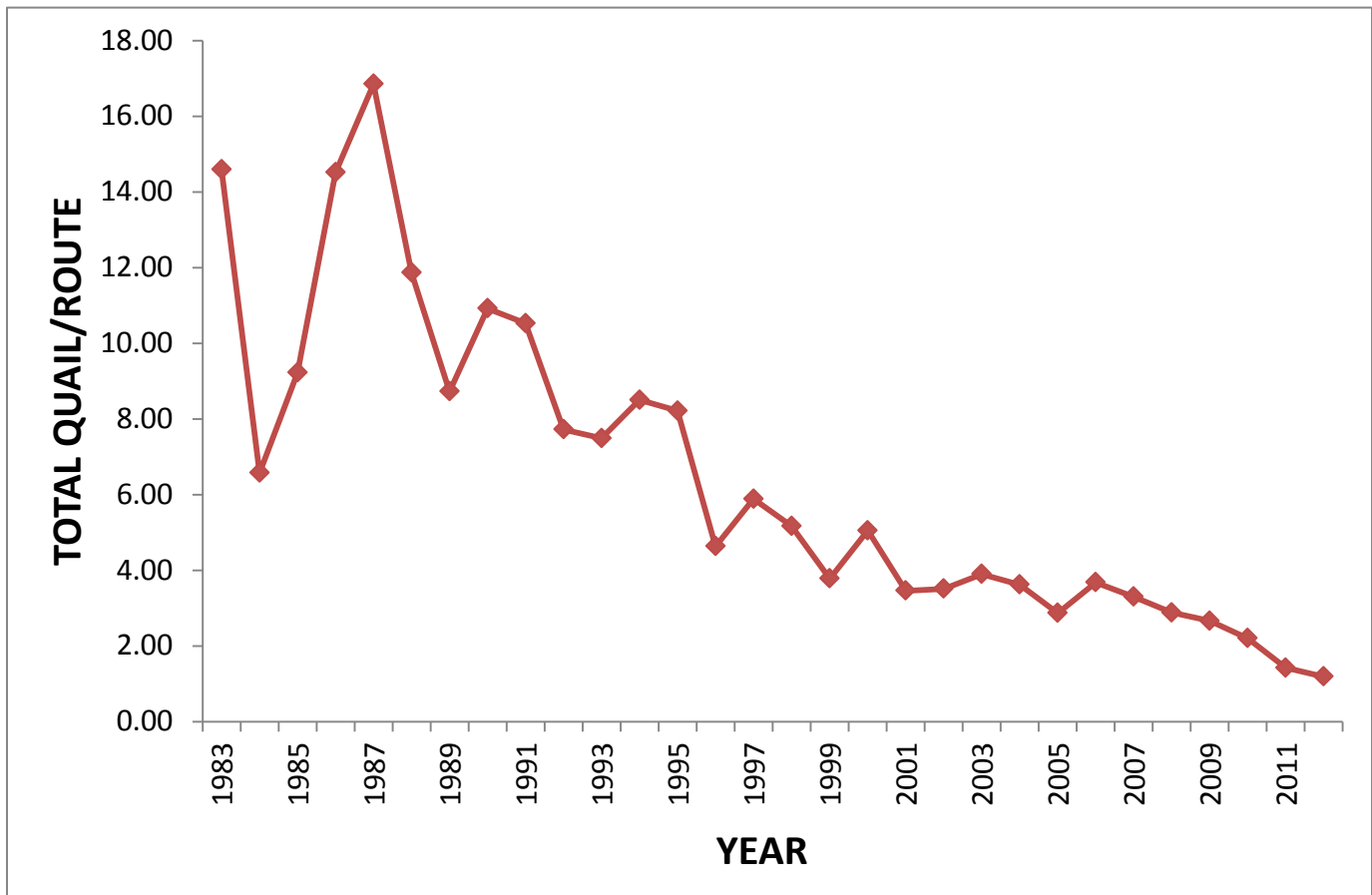


This year's statewide index of 1.2 quail per 30-mile route is 16% below last year's index of 1.4. This is 52% below the 5-year average (2007-2011) and 60% below the 10-year average (2002-2011) (Table 2). Production appeared to be low this year at the time of the survey with the statewide average chick count at 0.3 chicks per route which was 50% lower than last year (0.6). The number of chicks counted on this year's route may have appeared low due to early nesting. Chicks grow to adult size in about 15 weeks, so early hatched chicks would have been close to adult size by the time of



the survey. Total quail counts were up in one-half of the zoogeographic regions and down in the others. Counts were highest in the Western Ozark Border and Ozark Plateau (2.0 quail per route), followed by the Mississippi Lowlands (1.6 quail per route). Counts were lowest in the Northwest Prairie (0.3 quail per route), the Western Prairie and the Northern and Eastern Ozark Border (0.6 quail per route). The statewide long-term trend (1983-2012) is shown in Figure 2. Average numbers of quail observed per 30-mile route in 2012 by zoogeographic region are shown in Figure 3. Long-term trends by zoogeographic region are shown in Figure 4.

**Figure 2.** Statewide average of number of quail counted per 30-mile route from 1983-2012.

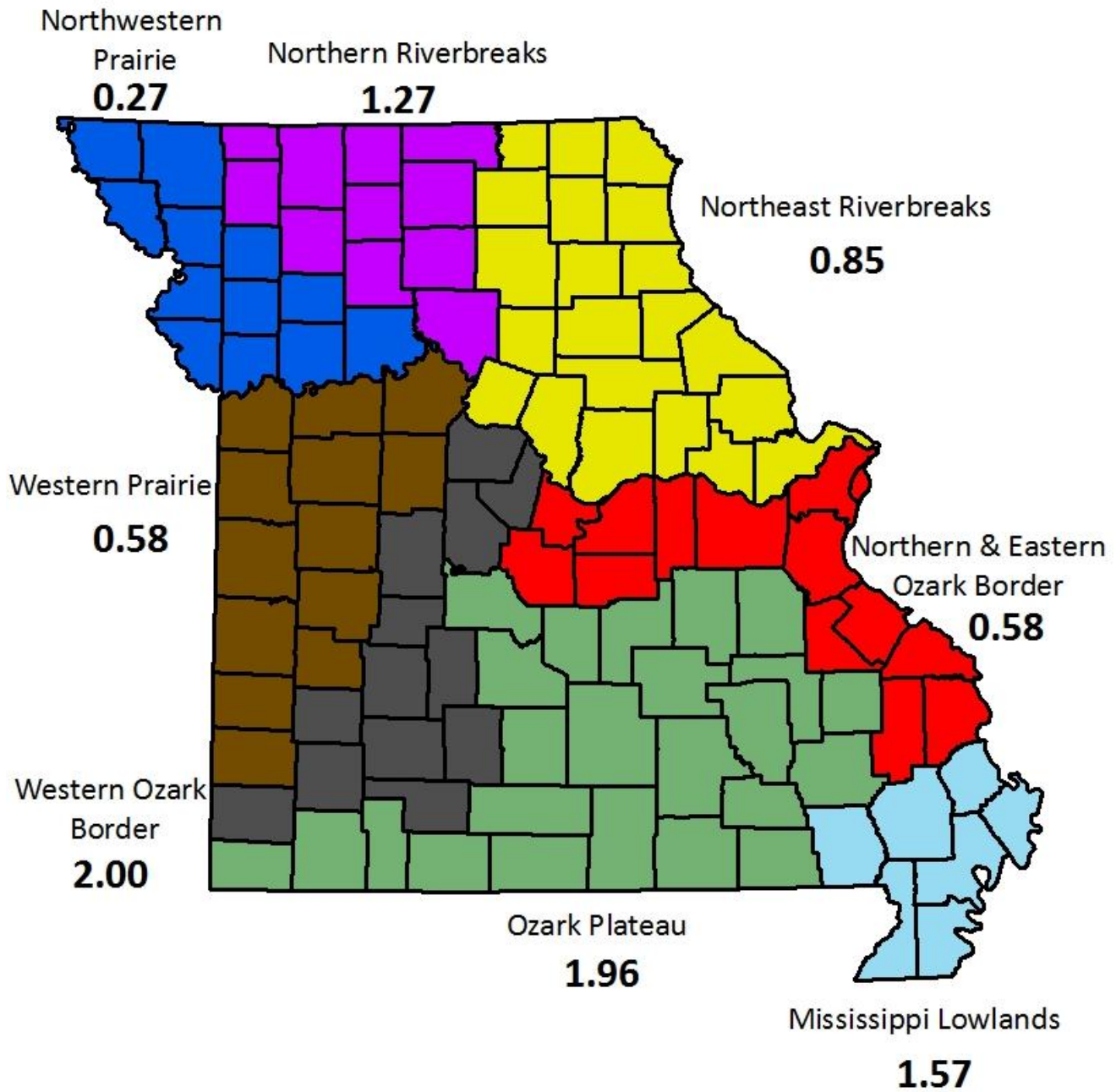


**Table 2.** Average number of quail counted per 30-mile route by Conservation Agents along 109 routes during August 1-15, 2012.

<b>Zoogeographic Region</b>	<b># of Routes run in 2012</b>	<b># of Quail Counted 2012</b>	<b># of Quail Counted 2011</b>	<b>% Change 2011-2012</b>	<b>Long-term Average 1983-2011</b>	<b>% Change from Long-term Average</b>
<b>Northwest Prairie</b>	11	0.27	2.38	-88.52	7.09	-96.19
<b>Northern Riverbreaks</b>	11	1.27	1.20	6.06	7.04	-81.96
<b>Northeast Riverbreaks</b>	20	0.85	0.90	-5.56	8.55	-90.06
<b>Western Prairie</b>	12	0.58	2.75	-78.79	13.72	-95.77
<b>Western Ozark Border</b>	12	2.00	0.92	116.67	6.25	-67.99
<b>Ozark Plateau</b>	24	1.96	1.33	46.88	2.82	-30.54
<b>Northern and Eastern Ozark Border</b>	12	0.58	1.83	-68.18	2.59	-77.64
<b>Mississippi Lowlands</b>	7	1.57	0.29	450.00	5.20	-69.79
<b>Statewide</b>	109	1.19	1.42	-15.72	6.5	-81.69

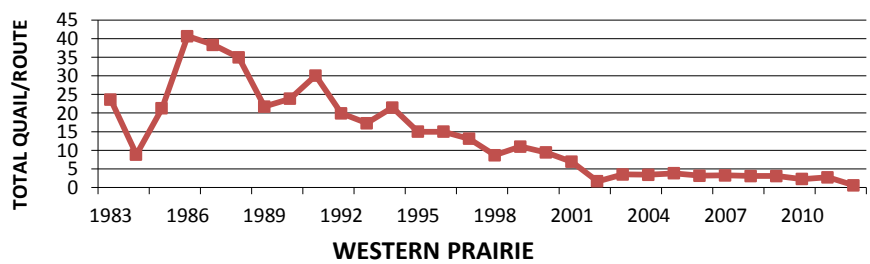
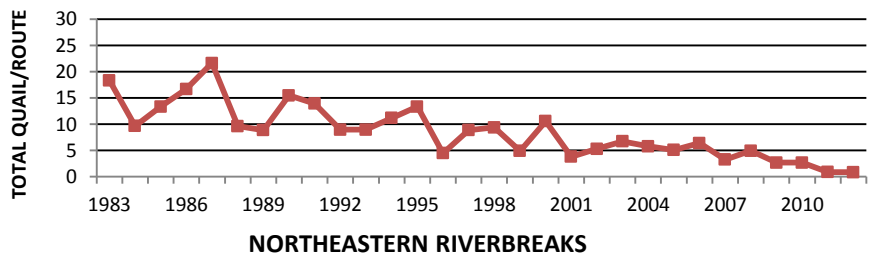
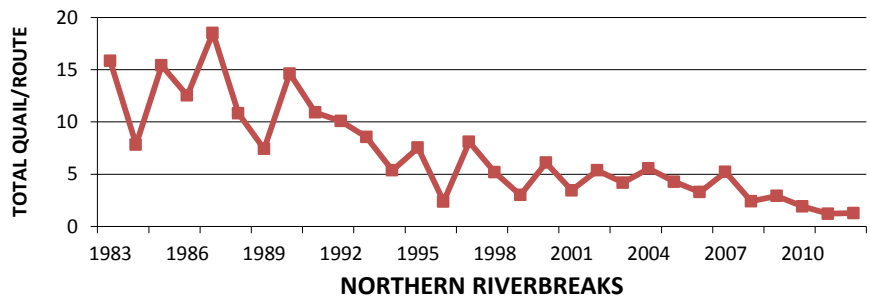
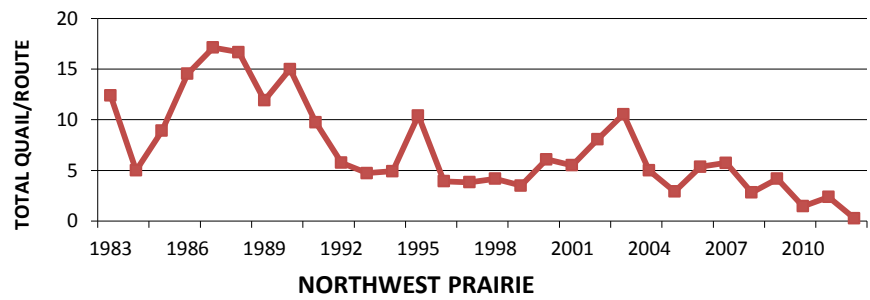


**Figure 3.** Average number of quail observed per 30-mile route by zoogeographic region in 2012.

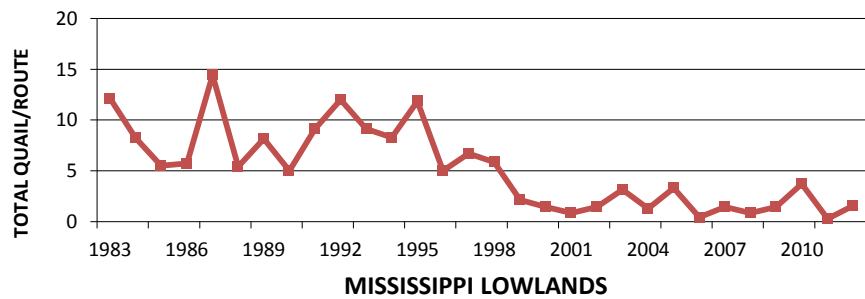
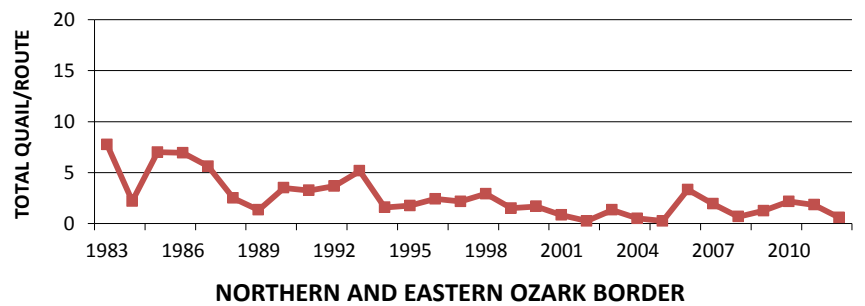
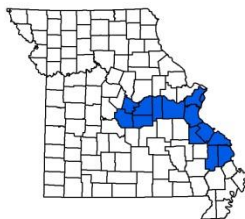
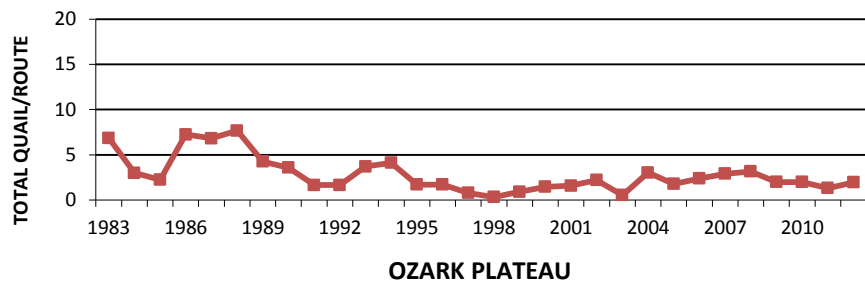
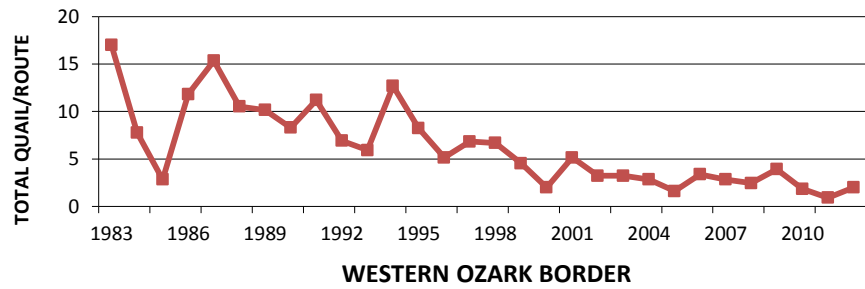




**Figure 4.** Mean quail per 30-mile route by zoogeographic region from 1983-2012.



**Figure 4 continued.** Mean quail per 30-mile route by zoogeographic region from 1983-2012.





## Ring-necked Pheasant Abundance

The Conservation Agents' Roadside Survey measures the number of pheasants observed along 72 standardized 30-mile routes (a subset of the routes sampled for bobwhites) during August 1-15 and provides a reliable predictor of fall pheasant harvest. The 2012 survey showed substantial decline in Missouri's pheasant population. The 2012 statewide count of 0.15 pheasants per 30-mile route was down 49% compared to 2011, down 76% compared to the previous 5-year average (2007-2011), and 90% lower than the 10-year average (2002-2011; Table 3). By zoogeographic region, counts were highest in the Western Prairie (0.33 pheasants per 30-mile route, up from zero birds counted in 2011). Numbers also increased 50% in the Northern Riverbreaks, but are still considerably low at 0.14 birds per 30-mile route. Counts decreased in all other zoogeographic regions.



A record low count of pheasants this year is a bit surprising due to the mild winter in 2011 and the warm, dry spring that should have led to ideal nesting conditions. Managers in areas occupied by pheasants noted increased crowing activity early in spring, relative to recent years. A potential reason for the lack of pheasants seen along roadsides in early August could be drought-related. Drier weather results in less ideal conditions for conducting surveys, as birds are more visible on heavy dew mornings. Drought conditions aside, loss of habitat continues to affect open-land species such as quail and pheasants. Missouri was estimated to have 122,600 acres of CRP expiring in 2011 and 377,100 in 2012. The loss of CRP reduces the opportunity to provide habitat in agricultural areas.

**Table 3.** The number of pheasants observed per 30-mile route from August 1-15, 2012 by zoogeographic region (see figure 3).

Zoogeographic Region	# of Routes in 2012	2012 Index	2011 Index	2-Year (2011-2012) % Change	5-Year (2007-2011) % Change	10-Year (2002-2011) % Change
Northwest Prairie	18	0.22	0.65	-65.7%	-78.7	-91.0%
Northern Riverbreaks	21	0.14	0.10	50.0%	-77.6	-89.5%
Northeastern Riverbreaks	24	0.13	0.33	-62.5%	-75.8	-90.5%
Western Prairie	3	0.33	0	*	66.7	-63.0%
Mississippi Lowlands	6	0	0	*	*	*
Statewide	72	0.15	0.30	-49.1	-76.0	-89.9%

\*Percentage not calculated due to a zero in the numerator or denominator.



## 2012-2013 Hunting Season Regulations and Dates

For pheasant hunting, there is a youth-only season in the North zone (counties north of I-70 and the portion of St. Charles County south of I-70) on October 27-28, 2012. It is open to youth ages 6 through 15. Youth who are not hunter-education certified must hunt in the immediate presence of a properly licensed adult; however, the adult may not hunt pheasants. The regular pheasant season in the North zone is November 1, 2012 through January 15, 2013. The daily bag limit is 2 and the possession bag limit is 4. The Southeast zone (Dunklin, New Madrid, Pemiscot and Stoddard counties) season runs from December 1-12, 2012. The daily bag limit is 1 and the possession bag limit is 1.

Because pheasant harvest is limited to males, hunting has little impact on long-term population trends.



There is also a youth-only season for quail on October 27-28, 2012. It is open to youth ages 6 through 15. Youths who are not hunter-education certified must hunt in the immediate presence of a properly licensed adult; however, the adult may not hunt quail. The regular quail season runs from November 1, 2012-January 15, 2013. The daily bag limit is 8 and the possession bag limit is 16.

## Public Land

The Wildlife Division has habitat management and area maintenance responsibility for 532,000 acres on 360 Conservation Areas (CAs). Over the past state fiscal year, Wildlife Division managed more than 20,000 acres on 19 Quail Emphasis Areas (QEA)s to benefit quail and grassland birds. Wildlife Division works closely with 330 permittee farmers on 163 Conservation Areas to achieve open land maintenance and provide ample winter food resources.

## 2012 Drought Impacts

Specific threats to wildlife and their habitats during drought conditions include wildfire, reduced grass and shrubby cover, reduction in both hard and soft mast production and reduced surface water availability for water-dependent wildlife species. Dry weather can also provide benefits to some wildlife species by improving nesting conditions for ground nesting birds and other small game and limiting the spread of some invasive plant species. The dry conditions have also allowed managers to conduct early successional management activities in areas that have been too wet during the previous four years.

Crops are generally poor with some yields expected to be 75% below normal. Some soybeans did not emerge due to drought and a large portion of the corn crop is anticipated to be cut for silage by our permittees. Areas where milo was planted are doing fairly well for a drought. Cool-season hay and forage is poor, native prairie and native warm-season grass stands are handling the drought better, but yields are depressed. Food plots are poor across the state; however, late summer scattered rainfall has produced a flush of common ragweed, foxtail and other annuals, which will provide food resources into the winter.

Public land managers were generally unable to conduct prescribed burns planned for this summer due to dangerous conditions. Some areas also halted herbicide application as the drought deepened; however, some conducted normal invasive species spraying all summer with no apparent negative impacts. Many managers took advantage of the dry



winter by increasing late winter and early spring burning and disking to set back thick vegetation. The drought helped suppress overly thick grasses, thus improving brood habitat overall.

### **Current/Anticipated Habitat Conditions on Quail Emphasis Areas**

MDC maintains 19 Quail Emphasis Areas (QEAs) throughout the state that are managed specifically for quail (Figure 5). These areas can be found at the following website: <http://mdc.mo.gov/hunting-trapping/birds/upland-game-birds/quail-emphasis-areas>. Staff conduct fall covey counts on each QEA during the month of October and these results were not available for this report. Preliminary manager observations from 13 QEAs are shared in the sections below.

#### *Current brood-rearing habitat*

QEA managers have overall rated brood-rearing habitat of quail as **“Good”**. Ample bare ground with limited vegetation growth due to the drought helped maintain brooding habitat this year. Drought conditions have resulted in good nest success and there still seem to be adequate insects for brood-rearing. Observations indicate the intense heat did not directly kill eggs and the hatch was good. Most grassland QEAs report brood-rearing habitat is shorter and thinner than normal. Site evaluations indicate that there are plenty of insects for high protein food.

#### *Anticipated fall cover habitat*

The majority of QEA managers feel fall cover will be in **“Good”** condition. The drought has had some beneficial effect on vegetation in that grass stands are thinner than normal, resulting in more useable acres.

#### *Anticipated Number of coveys*

QEA managers rated anticipated coveys as **“Fair” to “Good”** across the state. Better estimates will be available when fall covey counts conducted in early October provide more objective information.

#### *Anticipated quail hunting season outlook*

Most managers agree that they anticipate a **“Fair”** quail hunting season.

### **Review of Habitat Conditions and Quail Prospects on 13 QEAs by Zoogeographic Region**

#### **Mississippi Lowlands**

Crowley’s Ridge CA (Stoddard County)

Anticipated quail season: FAIR

Manager’s observations: “this season should be slightly better than past years due to increased production.

Brood-rearing habitat is shorter than normal and



thinner but there appear to be plenty of insects; it looks great for quail.”

### **Northeast Riverbreaks**

Davisdale CA (Howard County)

Anticipated quail season: POOR

Manager’s observations: “although we have good brood-rearing habitat and fall cover, we have not been observing many broods on the area.”

Henry Sever Lake CA (Knox County)

Anticipated quail season: GOOD

Manager’s observations: “habitat conditions are excellent and ground cover is thin due to the drought. Dry conditions have allowed staff to do more management of invasive species and edge feathering work to improve winter cover. Even when birds are plentiful at Sever, they can be difficult to find because of the abundance of cover.”

### **Northern and Eastern Ozark Border**

Maintz Wildlife Preserve (Cape Girardeau County)

Anticipated quail season: FAIR

Manager’s observations: “this season should be slightly better than past years due to increased production. Brood-rearing habitat is shorter than normal and thinner but there appear to be plenty of insects; it looks great for quail.”

### **Northern Riverbreaks**

Seat CA (Worth/Gentry Counties)

Anticipated quail season: FAIR

Manager’s observations: “nesting conditions were good during first nest attempts and brood cover is excellent. Quail numbers are still rebounding from 4 years of poor nest success and overwinter survival in 2007-2010.”

### **Northwestern Prairie**

Bonanza CA (Caldwell County)

Anticipated quail season: FAIR

Manager’s observations: “nest success and chick survival have been good. Significant amounts of edge feathering provide increased fall and winter cover.”

Bunch Hollow CA (Carroll County)

Anticipated quail season: GOOD

Manager’s observations: “we expect hunting to be better than in the last 2-3 years. More coveys were observed this year, with sizes ranging from 15-20 birds/covey. Fall cover should be good, with plenty of annual forbs and crops. Timber stand improvements, woodland thinning, and edge feathering will provide ample winter cover.”

Happy Holler CA (Andrew County)

Anticipated quail season: GOOD

Manager’s observations: “field staff reported seeing more quail than in previous years. Brood-rearing habitat has ample bare ground. Winter cover is expected to be good this season as well, as there will be many crops left standing due to poor yields.”



### **Western Prairie**

Peabody/Harmony Mission CA (Bates County)

Anticipated quail season: FAIR

Manager's observations: "we anticipate an increase in 2012 due to good nesting and brood-rearing conditions, but we are still recovering from steady declines from 2007-2010."

### **Western Ozark Border**

Bois D'Arc CA (Greene County)

Anticipated quail season: GOOD

Lamine CA (Cooper/Morgan Counties)

Anticipated quail season: POOR

Manager's observations: "few broods were observed by mid-August. Plenty of males were whistling in June, but it remains to be seen how that translated to brood production. June whistling males were up 35% over 2011, but still down 49% compared to the 7-year average."

Stockton Reservoir (Cedar/Date/Polk Counties)

Anticipated quail season: FAIR

Manager's observations: "the drought has resulted in good nest success and insects remain plentiful for brood-rearing. "

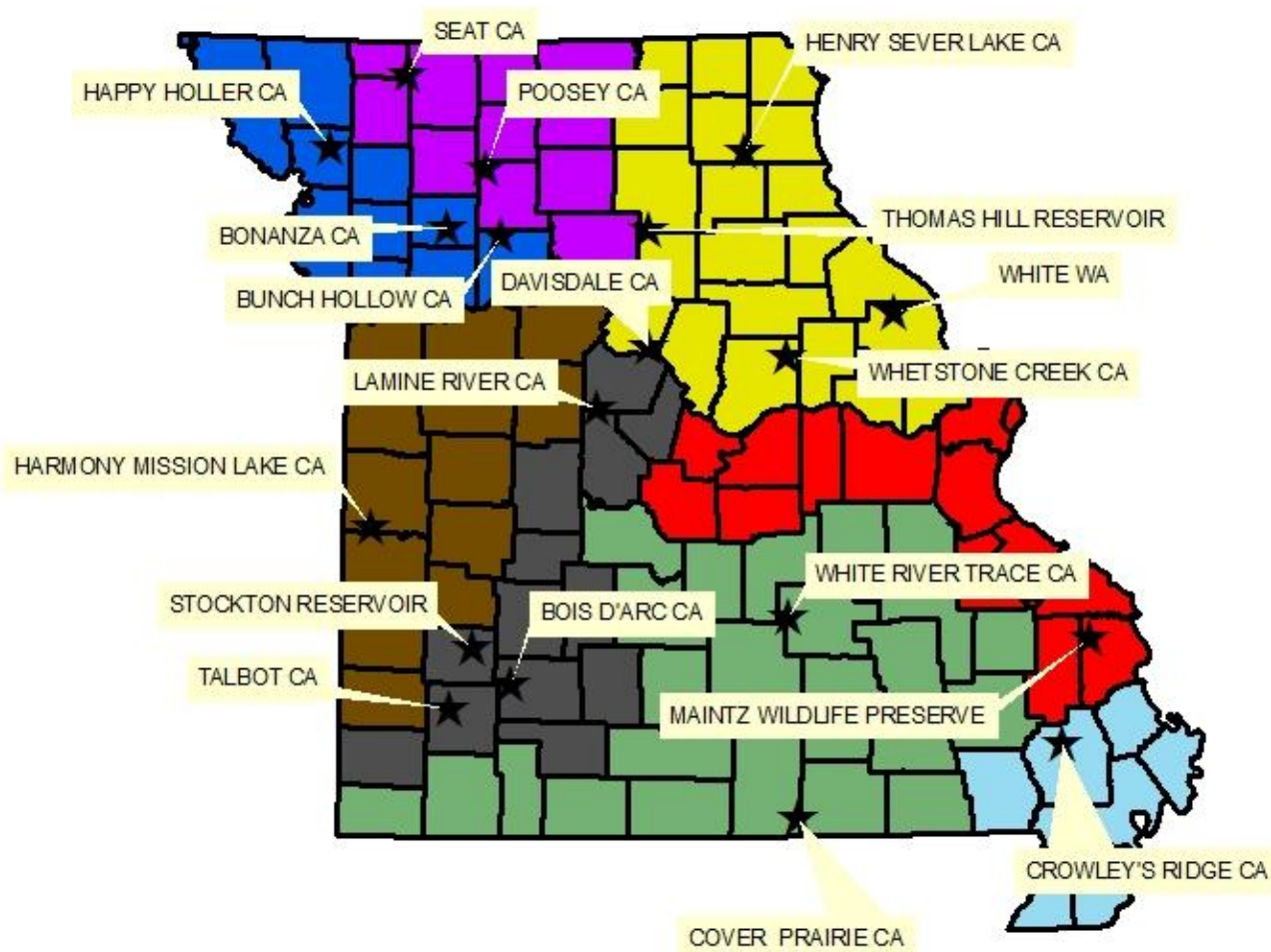
Talbot CA (Lawrence County)

Anticipated quail season: GOOD

Manager's observations: "as a quail hunter I am excited about this year's prospects. However, grassland areas that are not native prairie or are grazed may have poor winter food production this year due to the drought. While this may not result in overwinter mortality, we may see reduced production next summer. Bare ground is abundant. Overhead cover and insect abundance for broods hatched June- July are also good. August hatched birds may have some trouble with insect abundance. Staff are seeing decent numbers of broods and quite a bit of covey mixing right now. We are seeing good brood and covey sizes."



**Figure 5.** Quail Emphasis Areas by zoogeographic region.





## Private Lands

Private landowners are the key to improving quail habitat, since more than 93 percent of Missouri is privately owned. MDC private land conservationists work with more than 23,000 Missouri landowners to help them achieve their land-use objectives and about 17,000 of these landowners receive assistance with quail restoration and quail habitat. In addition to technical assistance, such as habitat-management planning, MDC provides about \$500,000 in cost-share funds to private landowners that go directly to quail habitat needs. MDC also works with several partner organizations to help deliver an average of \$280,000 in matching funds directly for quail needs. MDC staff help private landowners apply for more than \$150 million in funds through USDA Farm Bill programs, such as the Conservation Reserve Program and Conservation Buffers for Upland Birds.

MDC supports more than 30 private-land quail focus areas (QFAs) throughout the state. QFAs were selected in areas where landowners were already managing for quail, near conservation areas with good quail habitat, and/or where conservation partners have expressed an interest in quail management. Many focus areas are around 30,000 acres in size, but some are even larger because of wide-spread landowner interest and success. Within focus areas, staff have been working with landowners to improve quail habitat by providing technical and financial assistance. Landowners within QFAs may be eligible for additional cost-share opportunities and services, such as loaner equipment to help create quail habitat. MDC also works with partner organizations, including Quail Unlimited, Quail and Upland Wildlife Federation, and Quail and Pheasants Forever, on quail restoration. Members of several quail cooperatives help each other improve wildlife habitat and involve youth with habitat projects and wildlife education.

Get tips for developing a quail cooperative in your area from your local MDC private land conservationist (PLC). Your PLC can give you information about available incentives and cost-share programs and schedule a visit to evaluate and develop a plan to enhance the wildlife habitat on your property. For more information on quail management on private lands, click on the following link:

<http://mdc.mo.gov/landwater-care/animal-management/bird-management/quail>.

